

RECEIVED
CENTRAL FAX CENTER

DEC 03 2007

PTO/SB/07 (08-04)

Approved for use through 07/31/2008. OMB 0651-0031
U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE

Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it contains a valid OMB control number.

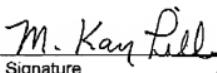
Certificate of Transmission under 37 CFR 1.8

USPTO Fax No.: (571) 273-8300

I hereby certify that this correspondence is being facsimile transmitted to the United States Patent and Trademark Office

on DECEMBER 3, 2007

Date



Signature

M. Kay Lilly

Typed or printed name of person signing Certificate

302-892-7922

Registration Number, If applicable

Telephone Number

Note: Each paper must have its own certificate of transmission, or this certificate must identify each submitted paper.

10795.769

IM1319USNA

APPEAL BRIEF UNDER 37 CFR 41.37
CERTIFICATE OF TRANSMISSIONPage 1 of 18

This collection of information is required by 37 CFR 1.8. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.11 and 1.14. This collection is estimated to take 1.8 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.

.PATENT

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE
BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES

IN THE APPLICATION OF:

MICHAEL LEE RUDOLPH ET AL.

RECEIVED
CENTRAL FAX CENTER

DEC 9 3 2007

CASE NO.: IM1319USNA

APPLICATION NO.: 10/975,769

CONFIRMATION NO.: 4094

GROUP ART UNIT: 1752

EXAMINER: AMANDA C. WALKE

FILED: MARCH 8, 2004

FOR: PHOTOSENSITIVE ELEMENT FOR USE AS FLEXOGRAPHIC PRINTING
PLATEAPPEAL BRIEF UNDER 37 CFR 41.37

Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Sir:

In accordance with 37 CFR 41.37, the following is a brief in support of the Appeal filed October 3, 2007, appealing the Final Rejection dated April 6, 2007 of Claims 1 through 74.

Please charge the Appeal Brief fee of \$510.00 pursuant to 37 CFR 41.20(b)(2), to Deposit Account No. 04-1928 (E. I. du Pont de Nemours and Company). The Commissioner is hereby authorized to charge any additional fees which may be required or credit any overpayment to Deposit Account No. 04-1928.

REAL PARTY IN INTEREST

The real party in interest is E. I. du Pont de Nemours and Company (the "Assignee"), 1007 Market Street, Wilmington, Delaware 19898, to whom this application has been assigned, said assignment being recorded at Reel 014893, Frame 0001.

12/04/2007 PCHOMP 00000019 041928 10975769
01 FC:1402 510.00 DA

Application No.: 11/795,769
Docket No.: IM1319USNA

Page 2

RELATED APPEALS AND INTERFERENCES

There are no other appeals or interferences known to the Appellant, the Appellant's legal representative, or the Assignee which will directly affect or be directly affected by or have a bearing on the Board's decision in the pending appeal.

STATUS OF CLAIMS

Claims 16 through 74, as set forth in the Claims Appendix, are pending, rejected and under appeal.

STATUS OF AMENDMENTS

All amendments filed subsequent to the Final Rejection have been entered.

SUMMARY OF CLAIMED SUBJECT MATTER

As described in the specification on page 3, at lines 21 through 36, the present invention as recited in Claim 1 is a photosensitive element comprising a support and at least one elastomeric photopolymerizable layer on the support that has a surface opposite the support defining a plane (see page 11, line 26 to page 12, line 22, and page 13, lines 11 and 12). A matted layer is disposed above the surface of the photopolymerizable layer and comprises a polymeric binder and at least one matting agent capable of forming depressions from the plane into the photopolymerizable layer (see page 6, lines 4 through 13). The matting agent is selected from the group consisting of i) matting agents having a pore volume of greater than or equal to 0.9 ml/g; ii) matting agents having a BET surface of greater than or equal to 150 m²/m; iii) matting agents having an oil number of greater than or equal to 150g/100g; iv) matting agents having at least one crosslinkable group; and v) combinations thereof, wherein the matting agent is present in an amount of $\geq 10\%$ by weight of the matted layer. Claim 25 specifically recites a process for preparing a photosensitive element comprising providing an elastomeric photopolymerizable layer disposed on a support wherein the photopolymerizable layer contains at least one elastomeric binder, at least one ethylenically unsaturated compound photopolymerizable by actinic radiation, and at least one photoinitiator or photoinitiator system, the elastomeric photopolymerizable layer having a surface opposite the support that defines a plane (see page 11, line 26 to page 12, line 22, and page 13, lines 11 and 12). A matted layer is disposed above the surface of the photopolymerizable layer and comprises a polymeric binder and at least one matting agent

Application No.: 11/795,769
Docket No.: IM1319USNA

Page 3

capable of forming depressions from the plane into the photopolymerizable layer (see page 6, lines 4 through 13). The matting agent is selected from the group consisting of i) matting agents having a pore volume of greater than or equal to 0.9 ml/g; ii) matting agents having a BET surface of greater than or equal to 150 m²/m; iii) matting agents having an oil number of greater than or equal to 150g/100g; iv) matting agents having at least one crosslinkable group; and v) combinations thereof, wherein the matting agent is present in an amount of \geq 10% by weight of the matted layer (see page 6, lines 14 through 18, and page 8, lines 24 through 27). The matted layer is then contacted with the surface of the elastomeric photopolymerizable layer, forming the photosensitive element (see page 22, lines 21 through 36). Claim 29 specifically recites a process for preparing a flexographic printing plate comprising exposing to actinic radiation through a photomask a photosensitive element as described above (see page 23, lines 11 through 28), thereby forming polymerized areas and unpolymerized areas in the photopolymerizable layer (see page 26, lines 4 through 13). The photomask is then removed and the exposed photosensitive element is treated to remove unpolymerized areas and form a relief surface suitable for printing, wherein the polymerized areas contain a plurality of depressions from the plane into the polymerized areas (see page 26, lines 15 through 33).

GROUNDS OF REJECTION TO BE REVIEWED ON APPEAL

Claims 1 through 16, 18, 23, 25 through 29, 44 through 46, 50 and 53 are provisionally rejected under 35 U.S.C. 101 as claiming the same invention as that of Claims 1, 5 through 9, 11 through 17, 19, 21, 24, 26, 27 through 34 and 36 of commonly assigned Application No. 10/507,950. Claims 1, 4 through 16, 18, 23, 25 through 29, 44 through 46, 50 and 53 are rejected under 35 U.S.C. 102(f) as teaching an identical photosensitive element as disclosed in commonly assigned U.S. 2005/0142480 (see above rejection under 35 U.S.C. 101). Claims 1 through 74 are rejected under 35 U.S.C. 103(a) as being unpatentable over Daems et al. (U.S. 6,551,759) in view of Frass et al. (U.S. 5,576,137) or Horsten et al. (WO/94/11198). Claims 1 through 74 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ueda et al. (EP 465 034 A1) in view of Frass et al. or Horsten et al. Claims 1 through 74 are rejected under 35 U.S.C. 103(a) as being unpatentable over Fujimoto et al. (U.S. 6,897,006 B2) in view of Frass et al. or Horsten et al. Claims 1 through 74 are rejected under 35 U.S.C. 103(a) as being unpatentable over DeVoeght et al. (U.S. 6,994,026) in view of Frass et al. or Horsten et al.

Application No.: 11/795,769
Docket No.: IM1319USNA

Page 4

ARGUMENT

With respect to Application No. 10/507,950 of common ownership that was abandoned on 2 December 2006, Assignee has previously declared in the Amendment filed on 1 December 2006 that the inventive entity of the present application is the prior inventor of the conflicting subject matter.

Daems et al. disclose a direct-to-plate flexographic printing plate precursor including in the order given, a flexible support, a photopolymerizable layer containing an elastomeric binder, an image recording layer including a thermoplastic binder and optionally a cover layer. Preferred thermoplastic binders for use in the image recording layer are polyesters, poly(meth)acrylates, polyvinylacetates or copolymers thereof or elastomeric polyurethane resins. Suitable commercially available binders are Dynapol S1404 (from Huls A. G.), Carboset 525 (from Goodrich), Mowilith CT5 (from Hoechst), Vitel VPE5545 (from Goodyear) and Vinnapas B100 (from Wacker Chemie). The image recording layer is preferably a laser ablatable layer that further comprises a light absorbing compound. Preferred light absorbing compounds are IR-absorbing dyes such as phthalocyanines or derivatives, cyanine dyes, merocyanine dyes and polymethine dyes or inorganic pigments such as carbon black, graphite, iron oxide or chromium oxide. Preferably carbon black is used. Furthermore carbon black renders the ablatable layer opaque to UV radiation, so there is no need to add an additional UV-absorbing dye. It is particularly preferred to use fine-grained carbon black with a mean particle size below 30 nm which is commercially available.

Both Frass et al. and Horsten et al. teach matting layers/protective layers for flexographic plates comprising matte particles. These particles may be polymeric and are present in amounts of greater than or equal to 100% by weight of the layer in a binder (see column 3, line 50 to column 5, line 35 of Frass et al. and the abstract and page 3 of Horsten et al.). Having the particles in these amounts protects the underlying radiation sensitive layer.

Ueda et al. disclose a photosensitive resin composition for flexographic printing. The photosensitive resin plate includes a substrate, a photosensitive resin layer formed on the substrate, and a resin matte layer formed on the photosensitive resin layer, wherein the resin matte layer contains a polymerization inhibiting material. However, Daems et al., Frass et al., Horsten et al. and Ueda et al. neither show nor suggest that particles in the matted layer are selected from the group consisting of i) matting agents having a pore volume of greater than or equal to 0.9 ml/g; ii) matting agents having a BET surface of greater than or equal to 150 m²/g; iii) matting agents having an oil number of greater than or equal to 150g/100g; iv) matting agents having at least one crosslinkable group; and v) combinations thereof. Although there may appear to be some overlap in materials disclosed as particles by Ueda et al. with matting agents for the present invention, Applicants clearly describe and claim in independent claims 1, 25 and 29 that the at least one matting agent must have one or more of

Application No.: 11/795,769
Docket No.: IM1319USNA

Page 5

the above described properties which includes pore volume, BET surface, oil number, or contain at least one crosslinkable group.

The Examiner has stated that the silica inorganic particles of Ueda et al. meet the present limitations for the matting agent because these properties are inherent characteristics that are expected to fall within the required ranges. The present invention is directed to a selection of matting agents having at least one specific property equal to or above a select value. While such characteristics as pore volume, BET surface, oil number may be typical properties of particles, Applicants have selected only those matting agents having at least one of these characteristics above or equal to a select value. Ueda et al. are silent to suitable characteristics of silica, as well as the type or even brand of silica used in the Examples. Only particle size is disclosed. Furthermore, Ueda et al. do not show or suggest that the particles are present in an amount $\geq 10\%$ by weight of the matted layer *so that the matting agent is capable of forming depressions into the plane of the photopolymerizable layer* as recited in the present independent claims. Ueda et al. disclose that the silica is present only in low quantities (4% by weight in Examples 2 through 4).

Fujimoto et al. disclose a multilayered photosensitive material for use as a flexographic printing plate by direct patterning with an infrared laser beam. The multilayered material includes a substrate, a photosensitive resinous layer having sensitivity to light except infrared light, a barrier layer of a composition of a resin selected from polyvinyl pyrrolidones and alkali-soluble cellulose compounds, a masking layer of a film-forming resin and infrared absorbing compound and a compound removable by irradiation with infrared laser beam.

Fujimoto et al. do not show or suggest that particles of infrared absorbing compound or non-infrared shielding compounds in the masking layer, are selected from the group consisting of i) matting agents having a pore volume of greater than or equal to 0.9 ml/g; ii) matting agents having a BET surface of greater than or equal to 150 m²/g; iii) matting agents having an oil number of greater than or equal to 150/g/100g; iv) matting agents having at least one crosslinkable group; and v) combinations thereof. Although there may appear to be some overlap in materials disclosed as infrared absorbing agents by Fujimoto et al. with matting agents for the present invention, Applicants clearly describe and claim in independent claims 1, 25 and 29 that the at least one matting agent must have a one or more of the above described properties which includes pore volume, BET surface, oil number, or contains a crosslinkable group equal to or above a select level. Even in an embodiment of the present invention where the matted layer may form an integrated masking layer that includes a material having high infrared absorption and a material that prevents the transmission of actinic radiation, it is clear that this embodiment of the matted layer still contains the matting

Application No.: 11/795,769
Docket No.: IM1319USNA

Page 6

agent and a polymeric binder. The materials with high infrared absorption and that prevent transmission of actinic radiation are not substitutes for or substituted by the matting agent.

The Examiner has stated that polyvinyl pyrrolidone meets the present limitations for the matting agent having at least one crosslinkable group. Applicants respectfully disagree. The present photosensitive element includes in the matted layer a polymeric binder and at least one matting agent. The matting agent is a particle that can be selected from a group in which one is a matting agent having at least one crosslinkable group. Clearly, Fujimoto et al. disclose a barrier layer that contains a *resinous compound* selected from polyvinyl pyrrolidones (Applicants' emphasis). A resinous compound having a crosslinking group (or not) in a barrier layer is not a teaching or even suggestion of a matted layer with a particulate matting agent having at least one crosslinkable group as is presently claimed. Furthermore, Fujimoto et al. do not show or suggest that the infrared absorbing agents are *matting agents that are capable of forming depressions into the plane of the photopolymerizable layer* as recited in the present independent claims.

DeVoeght et al. disclose a method for preparation of a flexographic printing plate having a spacing agent in its top layer comprising insoluble polymeric beads. However, De Voeght et al. do not show or suggest that such beads have the specific characteristics of the matting agents as presently claimed including being present in an amount \geq 10% by weight of the matted layer.

The Examiner has stated that it would be obvious to one of ordinary skill in the art to prepare the claimed matted layer of the present invention by choosing to employ the particles of either Frass et al. or Horsten et al. into the respective image recording layers of Daems et al., Ueda et al., Fujimoto et al. or De Voeght et al. because such particles are known and advantageous in such layers. However, such argument presupposes that one would also combine such particles in a critical amount of \geq 10% by weight of the matted layer. In testing, Applicants evaluated a range of matting agent concentrations and found that at less than the 10% level, the matting agent was not capable of forming depressions from the plane into the photopolymerizable layer sufficiently to make a positive impact that would yield an improvement in print quality as shown in Applicants' Examples. Even if such critical amount were selected, such references do not show or suggest that the particles in the matter layer are selected from the group consisting of i) matting agents having a pore volume of greater than or equal to 0.9 m³/g; ii) matting agents having a BET surface of greater than or equal to 150 m²/g; iii) matting agents having an oil number of greater than or equal to 150g/100g; iv) matting agents having at least one crosslinkable group; and v) combinations thereof. Thus, Applicants respectfully submit that the above combinations suggested by the Examiner constitute hindsight in view of the

Application No.: 11/795,769
Docket No.: IM1319USNA

Page 7

unexpected advantages described in the present specification attributable to the specifically claimed matting agent.

Patentability relies upon the distinctive limitations recited in present Claims 1, 25 and 29. Claims 2 through 24, 26 through 28, and 30 through 74, which directly depend or ultimately depend from Claims 1, 25 or 29, incorporate the patentable novelty of Claims 1, 25 and 29. Therefore, the allowance of Claims 2 through 24, 26 through 28, and 30 through 74 appears to be in order for at least the reasons given with respect to Claims 1, 25 and 29.

Accordingly, the Board of Patent Appeals and Interferences is respectfully requested to find that the Examiner erred in the rejection of Claims 1 through 74 in this application and that such claims are therefore allowable.

Respectfully submitted,



THOMAS H. MAGEE
ATTORNEY FOR APPELLANT
REGISTRATION NO. 27,355
TELEPHONE: 302-892-0795
FACSIMILE: 302-892-7949

Dated: December 3, 2007

Application No.: 11/795,769
Docket No.: IM1319USNA

Page 8

CLAIMS APPENDIX

1. A photosensitive element for use as a flexographic printing plate comprising
 - a) a support,
 - b) at least one elastomeric photopolymerizable layer on the support containing at least one elastomeric binder, at least one ethylenically unsaturated compound photopolymerizable by actinic radiation, and at least one photoinitiator or photoinitiator system, the elastomeric photopolymerizable layer having a surface opposite the support that defines a plane; and
 - c) a matted layer disposed above the surface of the photopolymerizable layer comprising a polymeric binder and at least one matting agent, the at least one matting agent capable of forming depressions from the plane into the photopolymerizable layer, and selected from the group consisting of
 - i) matting agents having a pore volume of \geq 0.9 ml/g;
 - ii) matting agents having a BET surface of \geq 150 m²/g;
 - iii) matting agents having an oil number of \geq 150g/100g;
 - iv) matting agents having at least one crosslinkable group; and
 - v) combinations thereof, wherein the matting agent is present in an amount \geq 10% by weight of the matted layer.
2. The photosensitive element of Claim 1 wherein the matted layer has a surface opposite the photopolymerizable layer that is smooth or substantially smooth.
3. The photosensitive element of Claim 1 wherein the matting agent is capable of forming the depressions after contacting the matte layer to the photopolymerizable layer and during exposure to actinic radiation and treatment.
4. The photosensitive element of Claim 1 wherein the matting agent has a pore volume of 1.0-2.5 ml/g.
5. The photosensitive element of Claim 1 wherein the matting agent has a BET surface of \geq 200 m²/g.
6. The photosensitive element of Claim 1 wherein the matting agent has an oil number of \geq 200 g/100 g.
7. The photosensitive element of Claim 1 wherein the matting agent is filled and/or loaded with at least one ethylenically unsaturated compound photopolymerizable by actinic radiation.

Application No.: 11/795,769
Docket No.: IM1319USNA

Page 9

8. The photosensitive element of Claim 1 wherein the matting agent having at least one crosslinkable group contains at least one ethylenically unsaturated group photopolymerizable by actinic radiation.
9. The photosensitive element of Claim 1 wherein the matting agent is a matting agent with a mean particle size of $\geq 3 \mu\text{m}$.
10. The photosensitive element of Claim 1 wherein the matting agent is a matting agent with a mean particle size of 3.25 μm .
11. The photosensitive element of Claim 1 wherein the matting agent is a matting agent with a mean particle size of $\geq 3 \mu\text{m}$, a pore volume of $\geq 0.9 \text{ ml/g}$, and oil number of $\geq 150 \text{ g/100 g}$.
12. The photosensitive element of Claim 1 wherein the matting agent is a matting agent with a mean particle size of $\geq 3 \mu\text{m}$, a pore volume of $\geq 0.9 \text{ ml/g}$, oil number of $\geq 150 \text{ g/100 g}$, and a BET surface of $\geq 150 \text{ m}^2/\text{g}$.
13. The photosensitive element of Claim 1 wherein the matting agent is a matting agent with a mean particle size of $\geq 3 \mu\text{m}$, a pore volume of 1.0-2.5 ml/g, oil number of $\geq 200 \text{ g/100 g}$, and a BET surface of $\geq 200 \text{ m}^2/\text{g}$.
14. The photosensitive element of Claim 1 wherein the matting agent comprises $\geq 20\%$ by weight of particles with a particle size of $\geq 15 \mu\text{m}$, the weight percentage based on the total amount of matting agent.
15. The photosensitive element of Claim 1 wherein the matting agent comprises $\geq 10\%$ by weight of a matting agent with a particle size of $\geq 3 \mu\text{m}$, the weight percentage based on the total amount of matting agent.
16. The photosensitive element of Claim 1 wherein the matted layer comprises at least one matting agent selected from the group consisting of silicic acids, silicates, and/or aluminates.
17. The photosensitive element of Claim 1 wherein the matted layer comprises at least one polymeric binder selected from the group consisting of polyamides, polyvinyl alcohols, polyurethanes, urethane copolymers, polyvinyl pyrrolidones, polyethylene oxides, copolymers of ethylene and vinyl acetate, polyacrylates, polyesters, cellulose esters, cellulose ethers, and polyolefins.
18. The photosensitive element of Claim 1 wherein the matted layer comprises at least one pigment and/or dye.
19. The photosensitive element of Claim 1 wherein the matted layer further comprises an auxiliary agent selected from the group consisting of plasticizers, coating aids, viscosity modifying agents, wetting agents, surfactants, waxes, and dispersing agents.

Application No.: 11/795,769
Docket No.: IM1319USNA

Page 10

20. The photosensitive element of Claim 1 wherein the matted layer further comprises at least one additive selected from the group consisting of an infrared-sensitive compound, a radiation opaque material, and wax.

21. The photosensitive element of Claim 1 further comprising an additional layer between the matted layer and the elastomeric photopolymerizable layer, the additional layer selected from the group consisting of an elastomeric layer capable of becoming photosensitive, a wax layer, and a laser-radiation-sensitive layer.

22. The photosensitive element of Claim 1 further comprising an additional layer disposed above the matted layer, the additional layer selected from the group consisting of a wax layer, and a laser-radiation-sensitive layer.

23. The photosensitive element of Claim 1 further comprising a cover sheet on the matted layer opposite the photopolymerizable layer.

24. The photosensitive element of Claim 1 further comprising an IR-sensitive layer disposed above the matted layer opposite the photopolymerizable layer.

25. A process for preparing a photosensitive element comprising

- (a) providing an elastomeric photopolymerizable layer disposed on a support wherein the photopolymerizable layer contains at least one elastomeric binder, at least one ethylenically unsaturated compound photopolymerizable by actinic radiation, and at least one photoinitiator or photoinitiator system, the elastomeric photopolymerizable layer having a surface opposite the support that defines a plane;
- (b) providing a matted layer comprising a polymeric binder and at least one matting agent, the at least one matting agent capable of forming depressions from the plane into the photopolymerizable layer, and selected from the group consisting of
 - i) matting agents having a pore volume of $\geq 0.9 \text{ ml/g}$;
 - ii) matting agents having a BET surface of $\geq 150 \text{ m}^2/\text{g}$;
 - iii) matting agents having an oil number of $\geq 150\text{g}/100\text{g}$;
 - iv) matting agents having at least one crosslinkable group; and
 - v) combinations thereof, wherein the matting agent is present in an amount $\geq 10\%$ by weight of the matted layer, and
- (c) contacting the matted layer with the surface of the elastomeric photopolymerizable layer forming the photosensitive element.

26. The process of Claim 25 wherein the photosensitive element further comprises an additional layer between the matted layer and the elastomeric photopolymerizable layer, the additional layer selected from the group consisting of an elastomeric layer capable of becoming photosensitive, and a wax layer, the

Application No.: 11/795,769
Docket No.: IM1319USNA

Page 11

process further comprising: providing the additional layer to the element by either (d') providing the additional layer on the surface of the elastomeric photopolymerizable layer, and contacting the matted layer to a surface of the additional layer opposite the elastomeric photopolymerizable layer, or (d'') providing the additional layer on the matted layer and contacting the additional layer to the surface of the elastomeric photopolymerizable layer.

27. The process of Claim 25 wherein contacting is by laminating the matted layer on the surface of the photopolymerizable layer opposite the support.

28. The process of Claim 25 wherein contacting comprises:

(1) passing into the nip of a calender a mass of a hot photopolymerizable composition comprising at least one elastomeric polymer, at least one ethylenically unsaturated compound photopolymerizable by actinic radiation, and at least one photoinitiator or photoinitiator system, and

(2) while hot, calendering the photopolymerizable composition between the support and a cover element to form the photopolymerizable layer therebetween, wherein the cover element comprises a cover sheet and the matted layer, the matted layer being adjacent to the photopolymerizable layer.

29. A process for preparing a flexographic printing plate comprising

(A) exposing to actinic radiation through a photomask a photosensitive element comprising

- a) a support,
- b) at least one elastomeric photopolymerizable layer on the support containing at least one elastomeric binder, at least one ethylenically unsaturated compound photopolymerizable by actinic radiation, and at least one photoinitiator or photoinitiator system, the elastomeric photopolymerizable layer having a surface opposite the support that defines a plane, and
- c) a matted layer disposed above the surface of the photopolymerizable layer comprising a polymeric binder and at least one matting agent, the at least one matting agent capable of forming depressions from the plane into the photopolymerizable layer, and selected from the group consisting of
 - i) matting agents having a pore volume of $\geq 0.9 \text{ ml/g}$
 - ii) matting agents having a BET surface of $\geq 150 \text{ m}^2/\text{g}$

Application No.: 11/795,769
Docket No.: IM1319USNA

Page 12

- iii) matting agents having an oil number of $\geq 150\text{g}/100\text{g}$;
- iv) matting agents having at least one crosslinkable group; and
- v) combinations thereof, wherein the matting agent is present in an amount $\geq 10\%$ by weight of the matted layer, forming polymerized areas and unpolymerized areas in the photopolymerizable layer;

- (B) removing the photomask, and
- (C) treating the exposed photosensitive element to remove unpolymerized areas and form a relief surface suitable for printing,

wherein the polymerized areas contain a plurality of depressions from the plane into the polymerized areas.

30. The process of Claim 29 wherein the plurality of depressions are located on a printing surface, and the depressions are characterized by surface pits such that at least 40% of printing surface is covered with surface pits.

31. The process of Claim 29 wherein the plurality of depressions are located on a printing surface, and the depressions are characterized by surface pits such that at least 50% of printing surface is covered with surface pits.

32. The process of Claim 29 wherein the plurality of depressions are located on a printing surface, and the printing surface is free or substantially free of surface peaks.

33. The process of Claim 29 wherein the depressions are at least 2 microns in depth.

34. The process of Claim 29 wherein the depressions are characterized by surface pits which are present at a surface pit density of at least 500 pits per square millimeter.

35. The process of Claim 29 wherein the plurality of depressions are located on a printing surface, and the depressions are characterized by surface pits ≥ 2 microns in depth which are present at a frequency of greater than about 80 surface pits per square millimeter on the printing surface.

36. The process of Claim 29 wherein the plurality of depressions are located on a printing surface, and the depressions are characterized by surface pits ≥ 3 microns in depth which are present at a frequency of greater than about 30 surface pits per square millimeter on the printing surface.

37. The process of Claim 29 wherein the plurality of depressions are located on a printing surface, and the depressions are characterized by surface pits ≥ 4

Application No.: 11/795,769
Docket No.: IM1319USNA

Page 13

microns in depth which are present at a frequency of greater than about 10 surface pits per square millimeter on the printing surface.

38. The process of Claim 29 wherein the plurality of depressions are located on a printing surface, and the depressions are characterized by surface pits \geq 5 microns in depth which are present at a frequency of greater than about 1 surface pits per square millimeter on the printing surface.

39. The process of Claim 29 wherein the plurality of depressions are located on a printing surface and have a depression aspect ratio between 10: 1 to 2:1.

40. The process of Claim 29 wherein the plurality of depressions are located on a printing surface and have a depression aspect ratio of at least 2:1.

41. The process of Claim 29 wherein the plurality of depressions are located on a printing surface and have a depression aspect ratio of less than 10:1.

42. The process of Claim 29 wherein the depressions are characterized by a surface pit opening size of at least 5 microns.

43. The process of Claim 29 wherein the plurality of depressions are located on a printing surface that has no or substantially no surface peaks above the plane of the photopolymerizable layer.

44. The process of Claim 29 wherein the treating step (C) is selected from the group consisting of

- (1) developing with at least one washout solution selected from the group consisting of solvent solution, aqueous solution, semi-aqueous solution, and water; and
- (2) heating the element to a temperature sufficient to cause the unpolymerized portions to melt, flow, or soften, and contacting the element with an absorbent material to remove the unpolymerized portions.

45. The process of Claim 29 wherein the exposing step (A) occurs in a vacuum.

46. The process of Claim 29 wherein the exposing step (A) occurs in the absence of atmospheric oxygen.

47. The process of Claim 29 wherein the exposing step (A) occurs in the presence of atmospheric oxygen.

48. The process of Claim 29 further comprising exposing the photosensitive element to ultraviolet radiation between 200 and 300 nm, prior to the treating step (C).

49. The process of Claim 29 wherein the photosensitive element comprises an integrated photomask and the exposing step (A) occurs in the presence of

Application No.: 11/795,769
Docket No.: IM1319USNA

Page 14

atmospheric oxygen, further comprising exposing the photosensitive element to ultraviolet radiation between 200 and 300 nm, prior to the treating step (C).

50. The process of Claim 29 wherein the removing step (B) occurs during the treating step (C).

51. The photosensitive element of Claim 3 wherein the exposure occurs in a vacuum.

52. The process of Claim 29 wherein the plurality of depressions are located on a printing surface, and the depressions are characterized by surface pits such that at least 30% of printing surface is covered with surface pits.

53. A flexographic printing plate produced by the process of Claim 29.

54. The process of Claim 29 wherein the plurality of depressions are located on a printing surface, and the depressions are characterized by surface pits such that at least 10% of printing surface is covered with surface pits.

55. The process of Claim 29 wherein the plurality of depressions are located on a printing surface, and the depressions are characterized by surface pits such that at least 60% of printing surface is covered with surface pits.

56. The process of Claim 29 wherein the plurality of depressions are located on a printing surface, and the depressions are characterized by surface pits such that 10 to 40% of printing surface is covered with surface pits.

57. The process of Claim 29 wherein the plurality of depressions are located on a printing surface, and the depressions are characterized by surface pits such that 30 to 60% of printing surface is covered with surface pits.

58. The process of Claim 29 wherein the depressions are characterized by surface pits which are present at a surface pit density of at least 350 pits per square millimeter.

59. The process of Claim 29 wherein the depressions are characterized by surface pits which are present at a surface pit density of 200 to 3000 pits per square millimeter.

60. The process of Claim 29 wherein the depressions are characterized by surface pits which are present at a surface pit density of 350 to 2500 pits per square millimeter.

61. The process of Claim 29 wherein the depressions are characterized by surface pits which are present at a surface pit density of 350 to 1000 pits per square millimeter.

62. The process of Claim 29 wherein the depressions are characterized by a surface pit opening size of 5 to 30 microns.

63. The process of Claim 29 wherein the depressions are characterized by a surface pit opening size of 8 to 22 microns.

Application No.: 11/795,769
Docket No.: IM1319USNA

Page 15

64. The process of Claim 29 wherein the depressions are characterized by a surface pit opening size of 10 to 15 microns.
65. The process of Claim 29 wherein the matted layer has a surface opposite the photopolymerizable layer that is smooth or substantially smooth.
66. The process of Claim 29 wherein the matted layer comprises at least one pigment and/or dye.
67. The process of Claim 29 wherein the matted layer further comprises an auxiliary agent selected from the group consisting of plasticizers, coating aids, viscosity modifying agents, wetting agents, surfactants, waxes, and dispersing agents.
68. The process of Claim 29 wherein the matted layer further comprises at least one additive selected from the group consisting of an infrared-sensitive compound, a radiation opaque material, and wax.
69. The process of Claim 29 further comprising an additional layer between the matted layer and the elastomeric photopolymerizable layer, the additional layer selected from the group consisting of an elastomeric layer capable of becoming photosensitive, a wax layer, and a laser-radiation-sensitive layer.
70. The process of Claim 29 further comprising an additional layer disposed above the matted layer, the additional layer selected from the group consisting of a wax layer, and a laser-radiation-sensitive layer.
71. The process of Claim 29 further comprising an IR-sensitive layer disposed above the matted layer opposite the photopolymerizable layer.
72. The process of Claim 29 wherein the photopolymerizable layer further comprises a second photoinitiator sensitive to actinic radiation between 200 and 300 nm.
73. The process of Claim 72 wherein the second photoinitiator is sensitive to radiation between 245 and 265 nm.
74. The process of Claim 48 wherein the photopolymerizable layer further comprises a second photoinitiator sensitive to actinic radiation between 200 and 300 nm.

Application No.: 11/795,769
Docket No.: IM1319USNA

Page 16

EVIDENCE APPENDIX

NONE

Application No.: 11/795,769
Docket No.: IM1319USNA

Page 17

RELATED PROCEEDINGS APPENDIX

NONE